## IN THE CLAIMS

Claims 1-21 (canceled)

Claim 22 (new) A method for designing experiments comprising the steps of:

selecting at least a first experiment from an experimental space using a data-driven optimizer;

receiving experimentally determined experiment data of the first experiment;

evaluating the experimentally determined experiment data of the first experiment at a meta layer module, wherein the meta layer module generates evaluation data; and

processing the experimentally determined experiment data of the first experiment at the optimizer, wherein the processing at the optimizer is influenced by the evaluation data.

Claim 23 (new). The method of claim 22 further comprising the step of:

selecting at least a second experiment from the experimental space using the optimizer.

Claim 24 (new). The method of claim 22, wherein at least one of the optimizer and the meta layer module changes the experimental space before the selecting the at least one second experiment step.

Claim 25 (new). The method of claim 22, wherein the meta layer module contains at least one of a neural network module, a hybrid model module, a rigorous model module and a data mining module.

Claim 26 (new). The method of claim 22, wherein the experimental data is based on experiments from at least one of active ingredient research, materials research, catalysis research, biotechnology and optimization of reaction conditions.

Claim 27 (new). The method of claim 22, wherein the evaluating at the meta layer module to generate the evaluation data includes the step of filtering the experiment data.

Claim 28 (new). The method of claim 27, wherein the filtering includes re-evaluating the experiment data.

Claim 29 (new). The method of claim 27, wherein the filtering includes at least one of weighting and pre-selecting the experiment data.

Claim 30 (new). The method of claim 29, wherein the weighting includes at least one of using a weighting parameter and performing at least one duplication of the experiment data.

Claim 31 (new). The method of claim 22, wherein the optimizer includes at least one core module and one module for selecting new test points.

Claim 32 (new). The method of a claim 31, wherein the processing at the optimizer is influenced based on processing at the module for selecting new test points.

Claim 33 (new). The method of a claim 32, wherein the processing at the module for selecting new test points is influenced by at least one of a value exceeding a threshold and a predefined user value.

Claim 34 (new). The method of claim 31, wherein the processing at the optimizer is influenced based on processing at the core module.

Claim 35 (new). The method of claim 34, wherein processing at the core module is influenced by at least one of a value exceeding a threshold and a predefined user value.

Claim 36 (new). A system for designing experiments comprising:

a optimizer for selecting at least one first experiment from an experimental space; and

a meta layer module coupled to the optimizer for evaluating experiment data determined experimentally for the first experiment, wherein the meta layer module generates experiment design data for influencing processing at the optimizer.

Claim 37 (new). The system of claim 36, wherein the meta layer module includes at least one of a neural network module, a hybrid model module, a rigorous model module and a data mining module.

Claim 38 (new). The system of claim 36, where the meta layer module includes a filtering module for filtering the experiment data.

Claim 39 (new). The system of claim 38, wherein the filtering module is operable to re-evaluate the experiment data.

Claim 40 (new). The system of claim 38, wherein the filtering module is operable to perform at least one of weighting and pre-selecting the experiment data.

Claim 41 (new). The system of claim 36, wherein the optimizer includes at least one core module and a module for selecting new test points.

Claim 42 (new). The system of a claim 41, wherein the meta layer module is operable to influence the module for selecting new test points.

Claim 43 (new). The system of according 41, wherein the meta layer module is operable to influence the core module.